[0016]   In some embodiments, the first database has no referential data associating the ballot selections with the electronic signatures stored in the separate structures in the first database.

[0017]   In some embodiments, the vote identification is a random alphanumeric string for tracking an instance of the ballot selection.

[0018]   In some embodiments, the electronic signature is an object bitmap created within a voting application on the user operated mobile computing device.

[0019]   In some embodiments, the election identifier identifies a particular election.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]   The foregoing and other features of the disclosure will become more fully apparent from the following description and appended claims, taken in conjunction with the accompanying drawings. Understanding that these drawings depict only several embodiments in accordance with the disclosure and are not to be considered limiting of its scope, the disclosure will be described with the additional specificity and detail through use of the accompanying drawings.

[0021]   FIG. 1 shows an exemplary system architecture for a blockchain management portion of a vote by mail system.

[0022]   FIG. 2 displays an object model that demonstrates interaction between various software objects in the blockchain powered vote by mail system

[0023]   FIG. 3 shows a software hierarchy diagram for various ways different users can interact with the blockchain access layer.

[0024]   FIG. 4 is a software hierarchy diagram of various software modules that can be used by the blockchain access layer.

[0025]   FIGS. 5a-5g display various screens of one embodiment of a voting application, user interface, or web site.

[0026]   FIG. 6 depicts a message flow diagram of an embodiment of voter registration.

[0027]   FIG. 7 depicts a message flow diagram of an embodiment of a log in process.

[0028]   FIG. 8 depicts a message flow diagram of an embodiment of a process of providing an ballot.

[0029]   FIG. 9 depicts a message flow diagram of an embodiment of a process for registering for an election.

[0030]   FIG. 10 depicts a message flow diagram of an embodiment of a process for mailing ballots.

[0031]   FIG. 11 depicts a message flow diagram of an embodiment of a process of receiving and submitting a mailed ballot.

[0032]   FIG. 12 depicts a message flow diagram of an embodiment of a process creating an election template.

[0033]   FIG. 13 depicts a message flow diagram of an embodiment of a process for creating a ballot template.

[0034]   FIG. 14 displays an embodiment for a system for storing voter choices on a secure blockchain.

[0035]   FIG. 15 displays an embodiment of a system that can be used to verify data sent out of the secure voting system using a verification smart contract.

[0036]   FIG. 16 displays a flow chart demonstrating an embodiment of how a user can create an account to use the secure voting system.

[0037]   FIG. 17 displays a flow chart demonstrating an embodiment of how an election official can load a list of voters that can use the system.

[0038]   FIG. 18 displays a flow chart demonstrating an embodiment of how a user can log in to an account to use the secure voting system.

[0039]   FIG. 19 displays a flow chart demonstrating an embodiment of how a election official could create a new election for use with the secure voting system.

[0040]   FIG. 20 displays a flow chart demonstrating an embodiment of how a ballot can be presented to the voter and then cast by the voter using the secure voting system.

[0041]   FIG. 21 displays a flow chart demonstrating an embodiment of how the votes can be tabulated using the secure voting system

DETAILED DESCRIPTION

[0042]   Secure voting is a desirable attribute of voting and election systems. Often a voter is not able to or does not desire to go to a polling place to cast a vote. An election official in a jurisdiction may wish to send secure ballots via the mail. Or, a jurisdiction may opt to utilize electronic resources for voting. In such cases, a secure voting system is desired. The security of a voting system can be increased by using the dependability and security of the United States Postal Service or similar entity, and this can be incorporated with a secure computer system using a blockchain or distributed ledger to ensure vote security and to prevent tampering or modification of electronic voting results.

[0043]   In some embodiments a vote by mail system can be secured, for example, using a blockchain to record some data regarding the mailed in votes in order to demonstrate the accuracy of the election. In some embodiments, the system also allows voters to vote using scanned versions of ballots received by mail. Further, in some embodiments, the system coordinates the mailing of ballots that can then be used with the system.

[0044]   In some embodiments of the vote by mail system, an election official can create a template ballot for use by potential voters. Voters can then apply to the system to allow them to receive a mailed ballot. The system can verify the identity of the voter and create a pseudo-anonymous token in the form of a unique identifier that represents the voter. In some embodiments, the vote by mail system then generates a paper ballot that is printed with a QR code, barcode, or other computer or machine readable identifier that represents the token. In some embodiments, the machine-readable identifier is a United States Postal Service Electronic Postmark (EPM®), or is a code or identifier associated with an EPM®. The paper ballot having the identifier thereon can then be mailed to the voter that corresponds to that token.

[0045]   In some embodiments, the voter can receive the paper ballot and use a mobile device or other computer to scan the ballot with a camera. The voter can then use the mobile device to cast digital votes, which are then written to a blockchain. The voter can then mail the blank ballot back to the registrar. In some embodiments, the voter does not vote electronically, but instead fills out the paper ballot and sends it to the registrar. In some embodiments, the QR code, barcode, or other computer or machine readable identifier on the printed out ballot can be used to verify the that the ballot was properly submitted by a registered voter.

[0046]   In some embodiments, the registrar can receive the ballot, scan the ballot's QR code, barcode, or other code, certify that the voter has voted and then ensure that the digital votes are added to the vote tallies of the candidates for election on the ballot. In other embodiments, the registrar